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From: moeller.29@osu.edu%inter2 [mailto:moeller.29@osu.edu]
Sent: Wednesday, November 23, 2005 11:57 AM
To: OConnor, Martin
Subject: USDA-DNA Workshop

Dear Mr. O'Connor,

I read with great interest regarding the topic of DNA use in product/process verified labeling claims being discussed at the December 6,
2005 meeting in Kansas City. As this meeting conflicts with my schedule and has been presented as an open forum to discuss the implications and or approaches that may be taken in the future, I hope that you will consider my comments below with regard to the discussion.

Scientifically, there is no doubt that as we consider the implications of advances in molecular genetics (tools/applications/opportunities) there will be considerable interest by holders of germplasm to use their knowledge bases to generate additional income or profit. The goal of any business is to remain profitable and sustainable against the competition. What is also evident is the increased proprietary nature of research findings, the reduced emphasis on governmental funding priorities that are for public good and widespread dissemination (even some of the current USDA funding results in the genome area are sold or licensed by institutions, etc), and the incentive for those companies/institutions with large investments in people, facilities, and or resources to form exclusive arrangements to protect findings in the genome area. While it is a free society and these things happen, there are also certain rules that exist that get bent substantially when it comes to how and when application occurs.

One specific example of this process is the purebred livestock industries. Identification and classification of an animal into a breed class relies on two very important concepts. One, pedigree verification of ancestry. The second is adherence to rules and regulations established be the breed society as an entity that governs the rules for what classifies eligibility of an animal to meet the breed specifications. Both are essential and direct long-term identity and future protection of a given breed(s). Use of DNA-technology can surely contribute to the efficacy of breed identity, but can just as easily have a major detrimental effect on breed identity if processes of use and or misuse of information are allowed to be propagated based on the zeal, protectionism, and profit.

A case in point would be the Berkshire breed. The American Berkshire Association (ABA), the oldest swine registry organization in the US and the only swine breed with a USDA process-verified shield, is constantly challenged by competing entities that wish to capitalize on the meat quality of "Berkshires" in marketing programs. Outside groups, including breeding companies, have attempted to capitalize on the market for Berkshire meat be offering a 'genetic' test for coat color that they claim indicates the presence of absence of the allele that confers the black coat color of the Berkshire. What they clearly fail, knowingly, to describe is that the black coat color gene they market for Berkshire pigs is also the black coat color gene for Poland, Pietrain, and Spotted breeds. Thus, they are able to clearly market

pork from pigs that may not contain any genes of Berkshire descent. The end result is the potential for there to be between zero (0) and 100% genes of Berskhsire origin in the product they market as "Berkshire" pork. This can represent the Pedigreed Berkshire population very negatively in terms of consumer confidence, product quality, source verification and overall demand for the product. Without a pedigree, and I realize that integrity is paramount in all scenarios, the DNA-based testing described clearly is not appropriate nor should it be included in breed claims.

Another example will be the color designations in cattle. Black hide has value, real or perceived, that various breeds have knowingly and actively pursued a grading up mating scheme to capitalize on the dominant nature of the black coat color gene such that they have predominantly black-hides in their progeny. The original, source breed (Angus) and its' genes that contributed the black coat color allele to these graded up cattle breeds, are diluted with repeated introgression through mating to the base breed and at some point or proportion of breed composition, purity (depends on the breed qualifications) and registration can occur. The problem in this scenario is that some residual genes that allow identification of Angus may allow the graded-up breed to quality when in fact there is a limited number of very little influence of Angus genes. Pandora's box has been opened and will not be easy to control.

The future and integrity of breed purity, breed organizations, and industry integrity is at stake with the decisions being made by USDA. I encourage extreme caution with respect to putting too much emphasis on DNA based technologies to verify breed origin. The value must be critically thought through without bias from large, successful corporate entities.

Thank you for the opportunity.

Steven J. Moeller
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